

REMARKS

Reconsideration and allowance of the present patent application based on the following remarks are respectfully requested. By this Response, no claims are added, amended or cancelled.

Accordingly, after entry of this Response, claims 1-12 will remain pending in the present application.

Claim Rejections – 35 USC § 103

Claims 1-5, 11 and 12 were rejected under 35 U.S.C. § 103(a) over Norton et al. (U.S. Patent No. 4,808,115) (hereinafter “Norton”) in view of Olsson (U.S. Patent No. 5,949,300) and Fayfield (U.S. Patent No. 5,644,730). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites a network bus coupler mountable on a circuit card, the network bus coupler comprising, *inter alia*, “connectors disposed exterior of the housing and extending outwardly from the housing, the connectors being electrically coupled to the electrical isolation circuitry and configured to engage at least some sockets of the circuit card, wherein the network bus coupler is configured to couple a bus to a device connected to the circuit card, the bus and the circuit card disposed exterior of the housing, and wherein a first plurality of said connectors extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said connectors extending outwardly from the housing is configured to be coupled to the device via the circuit card.”

Claim 11 recites, *inter alia*, “a housing configured to house essentially an electrical isolation circuitry; and, connectors disposed exterior of the housing and extending outwardly from the housing, the connectors being electrically coupled to the electrical isolation circuitry and configured to engage at least some sockets of the circuit card, wherein the network bus coupler is configured to couple a bus to a device connected to the circuit card, the bus and the circuit card disposed exterior of the housing, and wherein a first plurality of said connectors extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said connectors extending outwardly from the housing is configured to be coupled to the device via the circuit card.”

Claim 12 recites, *inter alia*, “a housing configured to house an electrical isolation circuitry; and, connectors disposed exterior of the housing and extending outwardly from the housing, the connectors being electrically coupled to the electrical isolation circuitry and configured to engage at least some sockets of the circuit card, wherein the network bus

coupler is configured to couple a bus to a device connected to the circuit card, the bus and the circuit card disposed exterior of the housing, and wherein a first plurality of said connectors extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said connectors extending outwardly from the housing is configured to be coupled to the device via the circuit card.”

Norton discloses a line replaceable module 12 (LRM) (identified by the Office Action as the “network bus coupler” of claim 1) having connectors 16, 50 (identified as the “connectors” of claim 1) that engage mother board connector assembly 160 which electrically connected to mother board 20 (identified as the “circuit card” in claim 1) within a black box (see, FIG. 3 and col. 9, lines 5-6 in Norton). The LRM assembly 12 includes circuit cards 38 and 40.

The Examiner contends that the connectors 16, 50 of Norton are disposed exterior to the housing and pins of connectors extend outwardly from the housing. The connectors are configured to be coupled to the mother board circuit card 20. The Examiner concedes that Norton does not disclose an isolation circuitry within the housing. The Examiner also admits that Norton does not disclose the network bus coupler coupling a bus to a device connected to the circuit board.

However, the Examiner contends that Olsson discloses the isolation circuitry such as isolation transformers 25 and 27 located within housing 41. The Examiner contends that it would have been obvious to one of ordinary skill in the art to add the isolation transformers of Olsson to the housing of Norton since the Olsson transformer is located in a shielded housing. The Examiner contends that in the Norton system modified according to the teachings of Olsson, the bus and the circuit card 20 are disposed exterior of the housing. With respect to a second plurality of connections extending outwardly from the housing and being coupled to the device, the Examiner contends that Olsson discloses connection of a plural channels through their own transformers to the same bus. The Examiner contends that such connection inherently requires the second set of connectors (pins) extending outwardly from the housing.

The Examiner further contends that Fayfield discloses a network bus coupler coupling a bus 110 to a device 102 connected to a circuit card through junction box 108. The Examiner contends that it would have been obvious to one of ordinary skill in the art to apply the Norton LRM design modified by the teachings of Olsson for implementing the bus coupler of Fayfield. Applicants respectfully disagree.

As conceded by the Examiner, Norton does not disclose, teach or even suggest a network bus coupler configured to couple a bus to a device.

Olsson fails to overcome the above deficiencies. Olsson discloses a line coupler having a first coupler half 35 which includes a bus line piece 13 having two bus line wires 15 and 17 and a second coupler half 37 which includes a transformer 23. Both the coupler halves 35 and 37 are accommodated in separate shielded housings. The first coupler half is contained in a first housing 39. The second coupler half 37 is contained in a second housing 41. A connector device 43 is situated between the two coupler halves 35 and 37 (see, col. 2, lines 49-67 and Fig. 1 of Olsson).

The transformer 23 (indicated as corresponding to the isolation circuitry of claim 1) in Olsson is connected to the bus line piece 13 via the connector device 43. The connector device 43 is connected to the bus line 13 via coupling elements (resistors) 29 and 31. Clearly, the connector device 43 in Olsson is not connected to the bus line 13 via a circuit card, as required in claims 1, 11 and 12.

Furthermore, one of ordinary skill in the art would not have been motivated to modify the Norton system with the teachings of Olsson as Olsson teaches away from using a circuit card and providing connections via the circuit card by specifically coupling the “isolation circuitry” (transformer 23) to the bus line via coupling elements (resistors) instead of via a circuit card.

In addition, even if one were to modify Norton according to the teachings of Olsson by adding the isolation transformers of Olsson to the housing of Norton, which Applicants do not concede, the isolation transformers of Olsson disposed in the housing of Norton would simply be connected to the bus line via resistors as taught in Olsson. Hence, in the modified Norton system, the connectors electrically connected to the isolation circuit are not coupled to the bus via a circuit card. As a result, the Norton system modified by Olsson would fail to disclose, teach or suggest the subject matter recited in independent claims 1, 11 and 12.

Fayfield discloses a binary sensor including an interface card 10. The interface card 10 comprises bus network interface circuitry 12 and a transistor 14 that provides an input signal to the bus network interface circuitry (see, col. 3, lines 40-50 in Fayfield). In another embodiment the binary sensor does not include an adaptive interface card. In which case a junction box 108 including the network interface circuitry is used to allow binary sensors 100a to communicate on the network bus 100 with programmable logic controller PLC 102 (see, col. 5, lines 30-58 in Fayfield).

Contrary to Examiner's contention, Fayfield does not disclose, teach or suggest "a network bus coupler configured to couple a bus to a device," as recited in claims 1, 11 and 12. In Fayfield, the network interface circuitry provided in the junction box 108 is connected to the network bus 100. The network interface circuitry in the junction box 108 is also connected to the device PLC 102 via the network bus 100. The network interface circuitry in junction box 108 does not couple the bus 100 to the device PLC 102. In Fayfield, the bus 100 is directly connected to the device PLC 102. In Fayfield, the network interface circuitry in the junction box 108 is simply used to allow the binary sensors 100a to communicate with the bus 100 (see, col. 5, lines 30-58). Consequently, Fayfield fails to cure the deficiencies noted by the Examiner in the combination of Norton and Olsson.

Furthermore, there is no suggestion, motivation or reason for one of ordinary skill in the art to combine Norton, Olsson and Fayfield in the manner suggested by the Examiner, as Norton, Olsson and Fayfield are related to very different fields of endeavor. Fayfield is concerned about facilitating communication between sensors connected to a bus network interface circuitry and a programmable logic controller via a bus, Norton is concerned about providing line replaceable connector assemblies for use with printed circuit boards and Olsson is directed to a line coupler for connecting a transformer to a bus line.

Consequently, for the above additional reasons, none of Norton, Olsson or Fayfield, alone or in combination, disclose, teach or even suggest the subject matter recited in claim 1.

Therefore, Applicants respectfully submit that claims 1, 11 and 12, and claims 2-5 which depend from claim 1, are patentable. Thus, it is respectfully requested that the rejection of claims 1-5, 11 and 12 under 35 U.S.C. § 103(a) over the combination of Norton, Olsson and Fayfield be withdrawn.

Claim 12 was rejected under 35 U.S.C. § 103(a) based on Brodsky (U.S. Patent No. 4,833,600) in view of Olsson. Applicants respectfully traverse this rejection for at least the following reasons.

The cited portions of Brodsky disclose an integrated circuit U3 interfaced with a common network line 20 through an INCOM coupling circuit 22 (see, FIGs. 1 and 2, and col. 5, lines 43-46 in Brodsky) which are located on a CONI card. The INCOM coupling circuit 22 includes a coupling transformer 90 (see, col. 17, lines 1-6 in Brodsky).

The Examiner contends that the CONI card in Brodsky represents a network bus coupler configured to couple a communication bus to a device (IBM processor) which is connected to the CONI card through its own IBM processor bus.

Applicants respectfully submit that claim 12 recites, *inter alia*, “the network bus coupler is configured to couple a bus to a device connected to the circuit card.” Clearly, in Brodsky, the network bus coupler (indicated as corresponding to the CONI card) is not configured to couple a bus to a device (indicated as corresponding to the IBM processor). Indeed, in Brodsky, the IBM processor is connected directly to the bus and the CONI card is also connected to the bus. As it is clearly stated in Col. 6, lines 22-26, the CONI card is plugged into the IBM processor bus 24. Therefore, the CONI card is not configured to couple the IBM processor to the bus 24. The IBM processor is directly coupled to the bus 24.

Furthermore, as conceded in the Office Action, Brodsky does not disclose a transformer housing. Moreover, Brodsky does not disclose, teach or suggest, *inter alia*, “connectors disposed exterior of the housing and extending outwardly from the housing, the connectors being electrically coupled to the electrical isolation circuitry and configured to engage at least some sockets of the circuit card, ...wherein a first plurality of said connectors extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said connectors extending outwardly from the housing is configured to be coupled to the device via the circuit card.”

Olsson fails to overcome the deficiencies noted above in Brodsky. As noted above with respect to claims 1, 11 and 12, Olsson does not disclose, teach or suggest the features recited in claim 12. Consequently, neither Brodsky nor Olsson, alone or in combination, disclose, teach or suggest the subject matter recited in claim 12.

Therefore, Applicants respectfully submit that claim 12 is patentable and respectfully request that the rejection of claim 12 under 35 U.S.C. § 103(a) over the combination of Brodsky and Olsson be withdrawn.

Claims 7, 8 and 10 were rejected under 35 U.S.C. § 103(a) based on Norton in view of Olsson. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 7 recites a system for coupling a device to a bus, said system comprising, *inter alia*, “a modular network bus coupler mountable to said circuit card and configured to couple the bus to the device connected to the circuit card, said bus coupler comprising: a housing; electrical isolation circuitry disposed within the housing; and, a plurality of pins disposed exterior of the housing and extending outwardly from the housing, the plurality of pins being engageable with at least some of said sockets of said circuit card, at least some of said pins being electrically coupled to said electrical isolation circuitry, wherein the bus and the circuit card are disposed exterior of the housing, and wherein a first plurality of said pins extending

outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said pins extending outwardly from the housing is configured to be coupled to the device via the circuit card.”

As noted previously, the cited portions of Norton and Olsson fail to disclose, teach or suggest these features.

Therefore, Applicants respectfully submit that claim 7, and claims 8 and 10 which depend therefrom, are patentable. Thus, it is respectfully requested that the rejection of claims 7, 8 and 10 under 35 U.S.C. § 103(a) over the combination of Norton and Olsson be withdrawn.

Claims 6 and 9 were rejected under 35 U.S.C. § 103(a) based on Norton in view of Olsson, Fayfield and Shaffer (U.S. Patent No. 5,841,778). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 6 depends from claim 1. Claim 9 depends from claim 7. Therefore, for at least the reasons provided above with respect to claims 1 and 7, Applicants respectfully submit that claims 6 and 9 are patentable over the combination of Norton, Olsson and Fayfield. Furthermore, claims 6 and 9 are further patentable for the subject matter recited therein.

Shaffer fails to overcome the deficiencies noted above in the combination of Norton, Olsson and Fayfield. Shaffer discloses a system for controlling traffic on a contention-based local area network. For example, Shaffer does not disclose, teach or suggest a plurality of pins disposed exterior of the housing and extending outwardly from the housing, the plurality of pins being engageable with at least some of said sockets of said circuit card, at least some of said pins being electrically coupled to said electrical isolation circuitry, wherein the bus and the circuit card are disposed exterior of the housing, and wherein a first plurality of said pins extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said pins extending outwardly from the housing is configured to be coupled to the device via the circuit card, as recited in claims 6 and 9.

Consequently, for at least these reasons, none of Norton, Olsson, Fayfield or Shaffer, alone or in combination disclose, teach or suggest the subject matter recited in claims 6 and 9.

Therefore, Applicants respectfully submit that claims 6 and 9 are patentable and respectfully request that the rejection of claims 6 and 9 under 35 U.S.C. § 103(a) over the combination of Norton, Olsson, Fayfield and Shaffer be withdrawn.

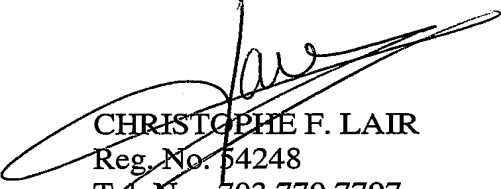
CONCLUSION

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains at issue which the Examiner feels may best be resolved through a personal or telephone interview, please contact the undersigned at the telephone number below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP



CHRISTOPHE F. LAIR
Reg. No. 54248
Tel. No. 703.770.7797
Fax No. 703.770.7901

JSB/CFL/KG
P.O. Box 10500
McLean, VA 22102
(703) 770-7900